WHAT IS CLAIMED IS:

1. A method of time scale modification of a digital audio signal comprising the steps of:

analyzing an input signal in a set of first equally spaced, overlapping time windows having a first overlap amount S_a;

selecting a base overlap S_s for output synthesis corresponding to a desired time scale modification;

calculating a cross-correlation R[k] for index value k between overlapping frames for a range of overlaps between $S_s + k_{min}$ to $S_s + k_{max}$ for a fixed length overlap region;

selecting a value K yielding the greatest cross-correlation value R[k];

synthesizing an output signal in a set of second equally spaced, overlapping time windows having a second overlap amount equal to $S_s + K$.

2. The method of claim 1, wherein:

said step of calculating the cross-correlation R[k] employs the equation

$$R[k] = \sum_{i=initial\_x}^{final\_x} sign\{y[mS_s + i + k]\} . sign\{x[mS_a + i]\} .$$

3. The method of claim 1, wherein:

said step of calculating the cross-correlation R[k] employs only a center half of the overlap region for k = 0.

4. A digital audio apparatus comprising:

a source of a digital audio signal;

a digital signal processor connected to said source of a digital audio signal programmed to perform time scale modification on the digital audio signal by

analyzing an input signal in a set of first equally spaced, overlapping time windows having a first overlap amount,

selecting a base overlap S_s for output synthesis corresponding to a desired time scale modification,

calculating a cross-correlation R[k] for index value k between overlapping frames for a range of overlaps between $S_s + k_{min}$ to $S_s + k_{max}$ for a fixed length overlap region;

selecting a value K yielding the greatest cross-correlation value R[k],

synthesizing an output signal in a set of second equally spaced, overlapping time windows having a second overlap amount equal to $S_s + K$; and

an output device connected to the digital signal processor for outputting the time scale modified digital audio signal.

5. The digital audio apparatus of claim 4, wherein:

said digital signal processor is programmed to calculate the cross-correlation R[k] employs the equation

$$R[k] = \sum_{i=initial\_x}^{final\_x} sign\{y[mS_s + i + k]\} . sign\{x[mS_a + i]\} .$$

6. The digital audio apparatus of claim 4, wherein:

said digital signal processor is programmed to calculate the cross-correlation R[k] employing only a center half of the overlap region for k = 0.